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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,784	03/06/2002	Akihiko Ito	111731	8518
25944	7590	01/04/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			NGUYEN, JIMMY H	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,784

Applicant(s)

ITO, AKIHIKO

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/2004 has been entered. Claims 1-3 are currently pending in the application. An action on the RCE follows:

Drawings

2. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1-3 are objected to because of the following informalities: "elements" in line 1 of claims 1 and 2, and in line 2 of claim 3, should be deleted or changed to --element-- because of the grammatical error. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (USPN: 5,877,738), hereinafter Ito, and further in view of Tsuzuki et al. (USPN: 4,465,999), hereinafter Tsuzuki.

As per claims 1-3, Ito discloses a LCD display apparatus and an associate LCD driving method comprising a step of displaying gray shades with a plurality of LCD elements (see figs. 15A-16, col. 25, lines 51-65) by using a plurality of scanning electrodes (row electrodes X1-Xn, see figs. 15A, 15A' and 2) and a plurality of signal electrodes (column electrodes Y1-Ym, see fig. 15B and 2); a step of simultaneously applying scanning signals of one of three predetermined scanning voltages, such as a maximum voltage (VX1), a minimum voltage (-VX1) and an averaged voltage (0V) (see figs. 15A and 15A'); and a step of applying to a signal electrode (VY1) a data signal of one of three predetermined data voltages such as a maximum data voltage (VY1), a minimum data voltage (-VY1) and an averaged data voltage (0V) (see fig. 15B). Further, as noting in figs. 15A and 15A', Ito teaches a display frame (F1) divided into four periods and the signal polarities applied to the three scanning electrodes, as recited in lines 16-20 of claim 1. Ito does not expressly teach the voltages VX1 and VY1 (or -VX1 and -VY1) being equal. Accordingly, Ito teaches all the claimed limitations except that the two predetermined

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scanning voltages (VX1, -VX1) are respectively same as the two predetermined data voltages (VY1, -VY1).

However, Tsuzuki teaches a related LCD device (col. 2, lines 36-41, see fig. 18), wherein the data signals (column drive signal C0, C12, ..., see fig. 7), which are applied to signal electrodes (column electrodes 55 and 56, col. 11, lines 10-11), should have three voltage levels (V0, V1, V2), which are made the same as three voltage levels of the scanning signals (row drive signals r1-r4, see fig. 7) applied to scanning electrodes (row electrodes 51-54, col. 11, line 10) (i.e., the three predetermined voltages applied to both the column electrodes and row electrodes), so as to reduce a number of voltage levels required to drive the LCD device (col. 11, lines 38-44). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide three predetermined voltages to both signal electrodes and scanning electrodes in the LCD device of Ito, in view of the teaching in the Tsuzuki reference, because this would reduce a number of voltage levels required to drive the LCD device, as taught by Tsuzuki (col. 11, lines 38-44).

Response to Arguments

6. Applicant's arguments filed 10/13/2004 have been fully considered but they are not persuasive because as follows:

Applicants argued that Tsuzuki discusses states in which individual display elements are turned on and/or turned off and is not directed to a method for displaying gray shades in a LCD device (see page 5, lines 10-11, and page 6, lines 1-2 of the amendment filed on 10/13/2004), the examiner disagrees because (i) as discussed in the rejection above, the step of displaying gray shades in a LCD device is expressly taught by the Ito reference, and (ii) it would have been

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obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the display element turned on in the Tsuzuki reference may be considered as displaying the display element with a maximum gray scale, and the display element turned off in the Tsuzuki reference may be considered as displaying the display element with a minimum gray scale, or that the Tsuzuki display device is capable of receiving a 1-bit gray scale video input and displaying the corresponding gray shades in a LCD device.

Applicants argued that the combination of Ito and Tsuzuki does not teach a display frame divided into four periods with the combination of signal polarities as recited in independent claim 1 (see page 6, lines 2-4), the examiner disagrees because as discussed in the rejection above, the newly added limitation, “a display frame is divided into four periods, ... the same” as recited in lines 16-20 of independent claim 1, is expressly disclosed by the Ito reference. See the new ground of the rejection above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is (703) 306-5422. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
December 28, 2004

A handwritten signature in black ink, appearing to read 'JH Nguyen', with a horizontal line extending to the right.

Jimmy H. Nguyen
Primary Examiner
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